CURRENT LISTING OF CLAIMS

We claim:

1. (canceled)

2. (currently amended) The method of Claim [[1]]10, wherein R^1 is a solid support.

3. (original) The method of Claim 2, wherein R^2 is a nitrogen protecting group.

4. (original) The method of Claim 2, wherein the reducing agent is selected from the group consisting of:

   CrX_2, wherein each X is independently halide, and

   a mixture of 1,1'-dialkyl-4,4'-bipyridinium dihalide and a thiosulfate compound.

5. (currently amended) The method of Claim 4, wherein the nitro reducing step (a) ~~comprises a~~ is done in the presence of a protic solvent.

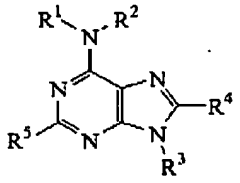
6. (currently amended) The method of Claim 4, wherein the 4,5,6-triaminopyrimidine produced in said step (a) is ~~substantially free~~ contains less than 10 mole percent of inorganic salts.

7. (currently amended) The method of Claim 4, wherein ~~substantially all~~ more than 90 mole percent of the solid support-bound pyrimidine ring remains bound to the solid support during said nitro group reducing step ([[a]] f).

8. (original) The method of Claim 2 further comprising cleaving the substituted purine from the solid support to produce the purine compound where R^1 is hydrogen.

9. (currently amended) The method of Claim [[1]] 10, wherein the cyclizing agent is an orthoester, an ~~acyl~~ carboxylic acid anhydride, an acyl halide, a mixture of isothiocyanate and an oxidizing agent, a mixture isocyanate and an oxidizing agent, or a mixture of an aldehyde and an oxidizing agent.

10. (currently amended) ~~The method of Claim 1, wherein the 5-nitropyrimidine compound is produced by steps comprising~~ A method for producing a substituted purine compound of the formula:



wherein

R^1 is a solid support, hydrogen, alkyl, cycloalkyl, or aryl;

R^2 is alkyl, cycloalkyl, aryl, or a nitrogen protecting group;

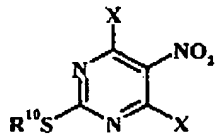
R^3 is hydrogen, alkyl, cycloalkyl, aryl, or a nitrogen protecting group;

R^4 is hydrogen, alkyl, aryl, or $-NR^6R^7$, where each of R^6 and R^7 is independently hydrogen, alkyl, aryl, or cycloalkyl; and

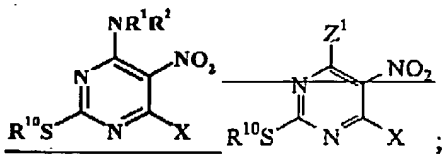
R^5 is alkyl, alkoxy, alkenyl, alkynyl, aryl, aryloxy, cycloalkyl, cycloalkoxy, alkylthiol, arylthio, or $-NR^8R^9$, where each of R^8 and R^9 is independently hydrogen, alkyl, cycloalkyl, aryl, or a nitrogen protecting group, or R^8 and R^9 together with the nitrogen atom to which they are attached to form a heterocycle nonaromatic cyclic moiety of 3 to 8 atoms in which one ring atom is a nitrogen and a second ring atom is optionally a NR^{10} (where R^{10} is hydrogen or C_{1-6} alkyl), O or $S(O)_n$ (where n is an integer from 0 to 2), the remaining remaining ring atoms being C, where one or two C atoms may be optionally replace by a carbonyl group;

said method comprising:

(a) contacting a 4,6-dihalo-5-nitro-2-thioether pyrimidine of the formula wherein R^{10} is alkyl, cycloalkyl, or aryl and each X is independently halide:

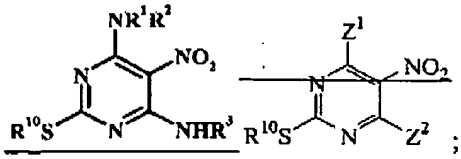


with a first amine compound of the formula [[Z^1H]] HNR^1R^2 to produce a 6-aminopyrimidine of the formula:

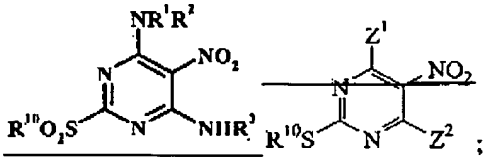


;

(b) contacting the 6-aminopyrimidine with a second amine compound of the formula [[Z^2H]] H_2NR^3 to produce a 4,6-diaminopyrimidine of the formula:

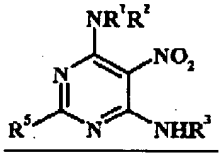


(c) contacting the 4,6-diamino pyrimidine with an oxidizing agent to produce a 2-sulfonylpyrimidine of the formula:



; and

(d) contacting the 2-sulfonylpyrimidine with a nucleophile of the formula R^5–M wherein M is hydrogen, alkali metal, or a cuprate or a magnesium metal complex to produce a [[the]] 5-nitropyrimidine compound of the formula,



~~wherein~~

~~one of Z^1 and Z^2 is NR^1R^2 and the other is NHR^3;~~

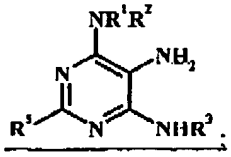
~~R^1, R^2, R^3, and R^5 are those defined in Claim1;~~

~~R^{10} is alkyl, cycloalkyl, or aryl;~~

~~M is hydrogen, metal, or a metal complex; and~~

~~each X is independently halide~~.

(e) contacting the 5-nitropyrimidine compound with a reducing agent to produce a 4,5,6-triaminopyrimidine of the formula:



and,

(f) forming a purine ring by contacting the 4,5,6-triaminopyrimidine with a cyclizing agent to produce the substituted purine compound.

11-22. (canceled)

* * * * * * * * *